Integrating Dell PowerConnect W-AirWave 7.4 AMP with Centralized NMS Event Correlation

Overview

This document describes AMP's alert/trap workflow when integrating with a centralized NMS Event Correlation System, using the following topics:

- "Adding NMS Event Correlation Servers to AMP" on page 1
- "Configuring Alerts/Traps in AMP" on page 1
- "Viewing Alerts in Various Destinations" on page 2
- "Acknowledging Alerts" on page 3
- "Compiling AMP's MIB on NMS" on page 3
- "Matching AMP's Severity in the NMS Event Correlation Servers" on page 3
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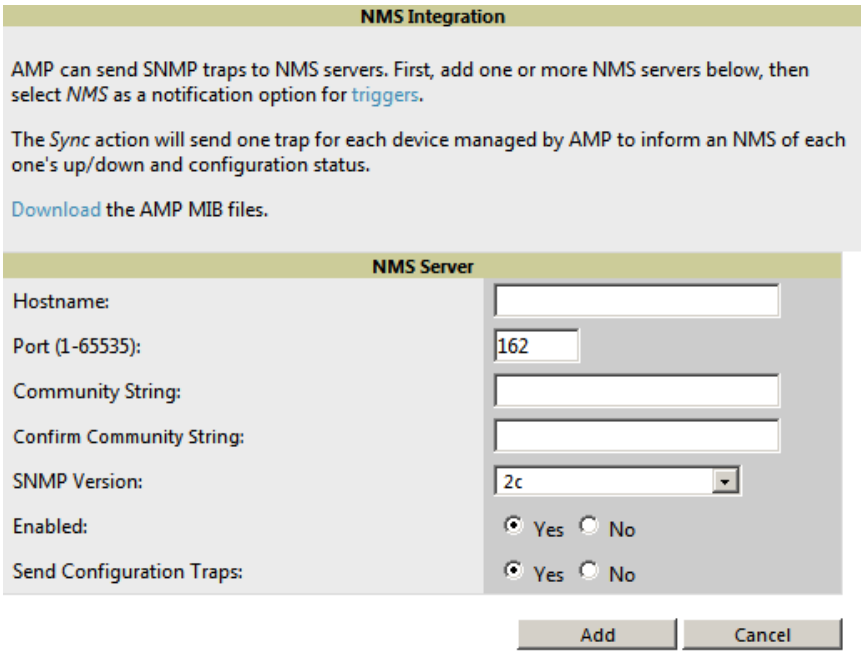
Adding NMS Event Correlation Servers to AMP

1. Navigate to **AMP Setup > NMS** and click **Add**.
2. Configure server settings, as shown in Figure 1.

Figure 1 *AMP Setup > NMS Page Illustration*

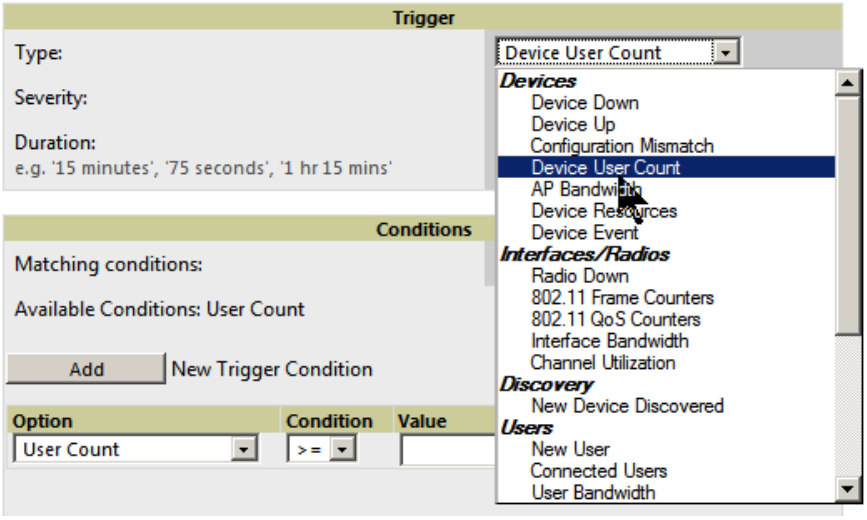

NMS Integration
AMP can send SNMP traps to NMS servers. First, add one or more NMS servers below, then select NMS as a notification option for triggers.
The Sync action will send one trap for each device managed by AMP to inform an NMS of each one's up/down and configuration status.
Download the AMP MIB files.
NMS Server
Hostname:
Port (1-65535):
162
Community String:
Confirm Community String:
SNMP Version:
2c
Enabled:
Yes
No
Send Configuration Traps:
Yes
No
Add
Cancel

Configuring Alerts/Traps in AMP

1. Navigate to **Systems > Triggers**, as shown in Figure 2.
2. Select one of the built-in Alerts/Traps.

3. Click **Add**.

Figure 2 *Configuring a* ***Device Count*** *Trigger*



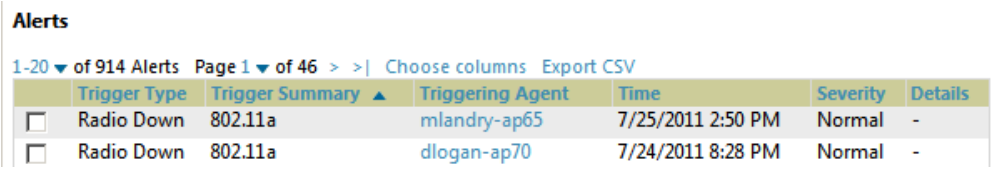
Configure properties for the Alert/Trap

- Thresholds for the alert (quantity and time)
- Severity of alert
- Distribution options
- Notification Method
  - Sender
  - Recipient
  - NMS – sends SNMP traps
- Alert Suppression

Viewing Alerts in Various Destinations

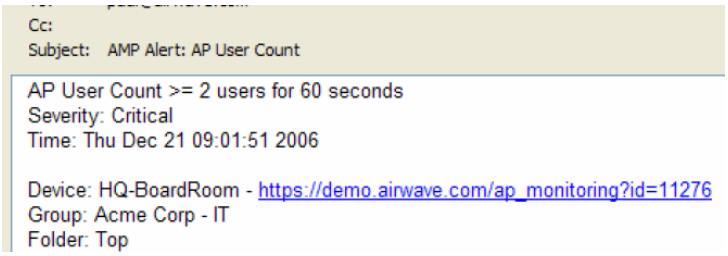
As seen on AMP's console **System > Alerts** page

Figure 3 ***System > Alerts*** *Page Illustration*



As seen in email from the recipient's perspective

Figure 4 *Email recipient of an alert*


Cc:
Subject: AMP Alert: AP User Count
AP User Count >= 2 users for 60 seconds
Severity: Critical
Time: Thu Dec 21 09:01:51 2006
Device: HQ-BoardRoom - https://demo.airwave.com/ap_monitoring?id=11276
Group: Acme Corp - IT
Folder: Top

As seen by the NMS server via a tcpdump of the actual alert

Device User Count

10:32:52.964243 IP (tos 0x0, ttl 64, id 0, offset 0, flags [DF], proto 17, length: 284) demo.amp.com.38979 > amp-openvie.snmptrap: [bad udp cksum ebf4!] { SNMPv2c C=foo { V2Trap(242) R=47680 system.sysUpTime.0=10 S:1.1.4.1.0=E:12028.4.15.0.3 E:12028.4.15.1.101=2 E:12028.4.15.1.102=4 E:12028.4.15.1.103="Device: HQ-Engineering - https://demo.amp.com/ap_monitoringid=11277: **AP User Count >= 2 users for 60 seconds"** E:12028.4.104=10.2.26.164 } }

Device Down

10:32:23.055999 IP (tos 0x0, ttl 64, id 0, offset 0, flags [DF], proto 17, length: 261) demo.amp.com.38934 > amp-openvie.snmptrap: [bad udp cksum e740!] { SNMPv2c C=foo { V2Trap(219) R=47676 system.sysUpTime.0=10 S:1.1.4.1.0=E:12028.4.15.0.13 E:12028.4.15.1.101=2 E:12028.4.15.1.102=4 E:12028.4.15.1.103="Device: Aruba-AP65-ap.2.2.3 - https://demo.amp.com/ap_monitoringid=11797: **Device Down " E:12028.4.104=10.51.3.46 }** }

OID Breakdown

12028.4.15.1.102 contains Severity Code

- 2 = Normal
- 3 = Warning
- 4 = Minor
- 5 = Major
- 6 = Critical

12028.4.15.1.103 contains several fields separated by colons

- Object Type {Client, AMP, Device/AP, Group)
- Object Name and URL (the URL is optional, if it exist then it will be separated by a dash "-"}
- Trap Description and Evaluation Elements

12028.4.15.1.104 contains device IP Address

- Group Traps will contain AMP's IP address.

Acknowledging Alerts

AMP alerts must be manually acknowledge from the **System > Alert** page. AMP does not currently provide an external interface to acknowledge alerts from an NMS server.

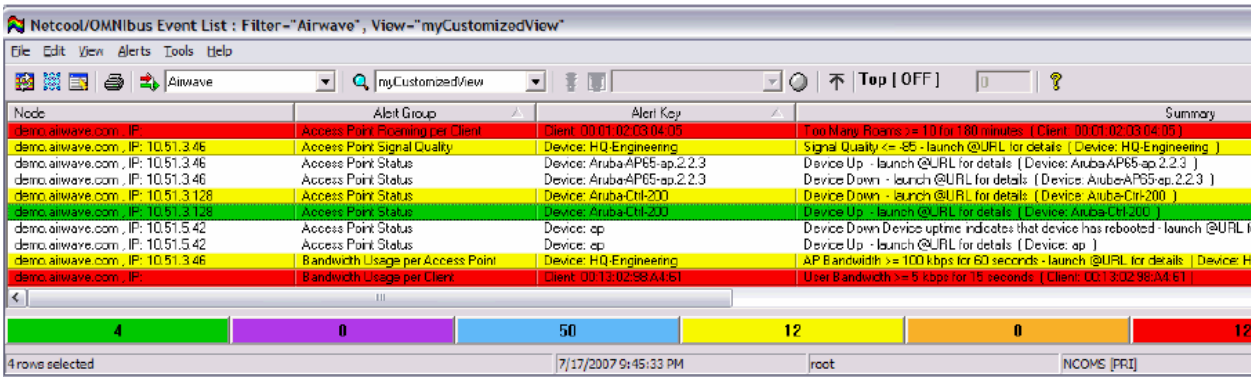
Compiling AMP's MIB on NMS

1. Navigate to **AMP Setup > NMS**.
2. Click on the **Download** link.
3. Transfer to NMS server.
4. Compile on NMS server.

Matching AMP's Severity in the NMS Event Correlation Servers

Most NMS Event Correlation systems have the ability to color code and esclate based on information received in the trap, as shown in Figure 5. The OID **12028.4.15.1.102** contians AMP's severity code.

Figure 5 *Color Codes*


Netcool/OMNIbus Event List : Filter-"Airwave", View-"myCustomizedView"
File Edit View Alerts Tools Help
Airwave
myCustomizedView
Top [OFF]
Node
Alert Group
Alert Key
Summary
demo.airwave.com , IP:
Access Point Roaming per Client
Client: 00:01:02:03:04:05
Too Many Roams >= 10 for 180 minutes (Client: 00:01:02:03:04:05)
demo.airwave.com , IP: 10.51.3.46
Access Point Signal Quality
Device: HQ-Engineering
Signal Quality <= -85 - launch @URL for details (Device: HQ-Engineering)
demo.airwave.com , IP: 10.51.3.46
Access Point Status
Device: Aruba-AP65-ap.2.2.3
Device Up - launch @URL for details (Device: Aruba-AP65-ap.2.2.3)
demo.airwave.com , IP: 10.51.3.46
Access Point Status
Device: Aruba-AP65-ap.2.2.3
Device Down - launch @URL for details (Device: Aruba-AP65-ap.2.2.3)
demo.airwave.com , IP: 10.51.3.128
Access Point Status
Device: Aruba-Ctrl-200
Device Down - launch @URL for details (Device: Aruba-Ctrl-200)
demo.airwave.com , IP: 10.51.3.128
Access Point Status
Device: Aruba-Ctrl-200
Device Up - launch @URL for details (Device: Aruba-Ctrl-200)
demo.airwave.com , IP: 10.51.5.42
Access Point Status
Device: ap
Device Down Device uptime indicates that device has rebooted - launch @URL
demo.airwave.com , IP: 10.51.5.42
Access Point Status
Device: ap
Device Up - launch @URL for details (Device: ap)
demo.airwave.com , IP: 10.51.3.46
Bandwidth Usage per Access Point
Device: HQ-Engineering
AP Bandwidth >= 100 kbps for 60 seconds - launch @URL for details | Device: H
demo.airwave.com , IP:
Bandwidth Usage per Client
Client: 00:13:02:98:A4:61
User Bandwidth >= 5 kbps for 15 seconds (Client: 00:13:02:98:A4:61)
4
0
50
12
0
12
4 rows selected
7/17/2007 9:45:33 PM
root
NCOMS [PRI]

Enhanced Integration

AMP has enhanced integration modules with several NMS Event Correlation Systems. These integrations provide enhanced functionality like quicklink porblem diagnostics, configuration, and WLAN topology views.

- **IBM Netcool** – navigate to https://www-304.ibm.com/software/brandcatalog/ismlibrary/details?catalog.label=1TW10NC16 to download the certified NetCool NIM
- (NetCool Integration Module).
- **ProCurve Manager** – Navigate to **AMP Setup > NMS** and click on the **HP ProCurve Manager** section to obtain additional information.
- **HP OpenView NNM** – See support.dell.com for additional information.

Actual MIB

NOTE: Traps in grey text are unused.

```
- ************************************************************************
-- *  awampEvent parameter definitions
-- ************************************************************************
awampEventID OBJECT-TYPE
                SYNTAX INTEGER
                MAX-ACCESS read-only
                STATUS current
                DESCRIPTION
                        "Random number AMP assigns to the event."
        ::= { awampEventObject 101 }
awampEventSeverityCode OBJECT-TYPE
                SYNTAX INTEGER
                MAX-ACCESS read-only
                STATUS current
                DESCRIPTION
                        "Level 1-6"
        ::= { awampEventObject 102 }
awampEventDescription OBJECT-TYPE
                SYNTAX DisplayString
                MAX-ACCESS read-only
                STATUS current
                DESCRIPTION
                        "Concatenated String produced from AMP."
        ::= { awampEventObject 103 }
awampEventAPIPOld OBJECT-TYPE
                SYNTAX IpAddress
                MAX-ACCESS read-only
                STATUS current
                DESCRIPTION
                        "Old IP of the AP when AMP changes and
                         sends trap to HPOV."
```

```
        ::= { awampEventObject 104 }
awampEventAPMngURL OBJECT-TYPE
                SYNTAX DisplayString
                MAX-ACCESS read-only
                STATUS current
                DESCRIPTION
                        "URL to manage AP on AMP from HPOV."
        ::= { awampEventObject 105 }
awampEventAPMonURL OBJECT-TYPE
                SYNTAX DisplayString
                MAX-ACCESS read-only
                STATUS current
                DESCRIPTION
                        "URL to monitor AP on AMP from HPOV."
        ::= { awampEventObject 106 }
awampEventGroupMngURL OBJECT-TYPE
                SYNTAX DisplayString
                MAX-ACCESS read-only
                STATUS current
                DESCRIPTION
                        "URL to manage Group on AMP from HPOV."
        ::= { awampEventObject 107 }
awampEventGroupMonURL OBJECT-TYPE
                SYNTAX DisplayString
                MAX-ACCESS read-only
                STATUS current
                DESCRIPTION
                        "URL to monitor Group on AMP from HPOV."
        ::= { awampEventObject 108 }
awampEventAPICON OBJECT-TYPE
                SYNTAX DisplayString
                MAX-ACCESS read-only
                STATUS current
                DESCRIPTION
                        "Name of ICON to display on HPOV screen"
        ::= { awampEventObject 109 }
-- ****************************************************************
-- *  Fault Traps generated by the AMP
-- *  (1.3.6.1.4.12028.4.15.0.)
-- ****************************************************************

tooManyDevAssocAMP NOTIFICATION-TYPE
 OBJECTS { awampEventID,
                awampEventSeverityCode,
                awampEventDescription }
    STATUS current
    DESCRIPTION
 "This trap is sent when too many devices are
 simultaneously associated with AMP for a period of time."
    ::= { awampEventPrefix 1 }
tooManyDevAssocGroup NOTIFICATION-TYPE
 OBJECTS { awampEventID,
                awampEventSeverityCode,
                awampEventDescription }
    STATUS current
    DESCRIPTION
 "This trap is sent when too many devices are
 simultaneously associated with AMP for a period of time."
    ::= { awampEventPrefix 2 }

tooManyDevAssocAp NOTIFICATION-TYPE
 OBJECTS { awampEventID,
                awampEventSeverityCode,
                awampEventDescription,
      awampAPIP }
    STATUS current
    DESCRIPTION
 "This trap is sent when too many devices are associated
 simultaneously associated with AP for a period of time. "
    ::= { awampEventPrefix 3 }

toomuchBWAMP NOTIFICATION-TYPE
 OBJECTS { awampEventID,
                awampEventSeverityCode,
                awampEventDescription }
    STATUS current
    DESCRIPTION
 "This trap is sent when there is too much BW being
```

```
 used on the WLAN for a period of time."
    ::= { awampEventPrefix 4 }
toomuchBWGroup NOTIFICATION-TYPE
 OBJECTS { awampEventID,
                awampEventSeverityCode,
                awampEventDescription }
    STATUS current
    DESCRIPTION
 "This trap is sent when there is too much BW being
 used by a Group for a period of time."
    ::= { awampEventPrefix 5 }

toomuchBWAP NOTIFICATION-TYPE
 OBJECTS { awampEventID,
                awampEventSeverityCode,
                awampEventDescription,
      awampAPIP }
    STATUS current
    DESCRIPTION
 "This trap is sent when there is too much BW being
 used on an AP for a period of time."
    ::= { awampEventPrefix 6 }
toomuchBWClient NOTIFICATION-TYPE
 OBJECTS { awampEventID,
                awampEventSeverityCode,
                awampEventDescription }
    STATUS current
    DESCRIPTION
 "This trap is sent when there is too much BW being
 used by a Client for a period of time."
    ::= { awampEventPrefix 7 }

toomanyRoamsClient NOTIFICATION-TYPE
 OBJECTS { awampEventID,
                awampEventSeverityCode,
                awampEventDescription }
    STATUS current
    DESCRIPTION
 "This trap is sent when Client roams too often from
 AP to AP for a period of time."
    ::= { awampEventPrefix 8 }
poorSignalAP NOTIFICATION-TYPE
 OBJECTS { awampEventID,
                awampEventSeverityCode,
                awampEventDescription,
                awampAPIP }
    STATUS current
    DESCRIPTION
 "This trap is sent when an AP has poor Signal
 quality for a period of time."
    ::= { awampEventPrefix 9 }

nonAMPAPChange NOTIFICATION-TYPE
 OBJECTS { awampEventID,
                awampEventSeverityCode,
                awampEventDescription,
      awampAPIP }
    STATUS current
    DESCRIPTION
 "This trap is sent when an AP Changes configuration
 without the AMP's knowledge"
    ::= { awampEventPrefix 10 }

unauthenticatedClient NOTIFICATION-TYPE
 OBJECTS { awampEventID,
                awampEventSeverityCode,
                awampEventDescription }
    STATUS current
    DESCRIPTION
 "This trap is sent when Client is associated with
 WLAN for a period of time without authenticating."
    ::= { awampEventPrefix 11 }

rogueAPDetected NOTIFICATION-TYPE
 OBJECTS { awampEventID,
                awampEventSeverityCode,
                awampEventDescription }
    STATUS current
```

```
    DESCRIPTION
 "This trap is sent when the AMP discovers a Rogue
      AP."
    ::= { awampEventPrefix 12 }

downAP NOTIFICATION-TYPE
 OBJECTS { awampEventID,
                awampEventSeverityCode,
                awampEventDescription,
                awampAPIP }
    STATUS current
    DESCRIPTION
 "This trap is sent when the AP is down as in
  missed SNMP Ping or SNMP Get"
    ::= { awampEventPrefix 13 }
discoveredAP NOTIFICATION-TYPE
 OBJECTS { awampEventID,
                awampEventSeverityCode,
                awampEventDescription,
                awampAPIP }
    STATUS current
    DESCRIPTION
 "This trap is sent when AP is discovered by AMP.
  The AP is not authorized, but only discoverd.
  A Config trap is when AP is authorized"
    ::= { awampEventPrefix 14 }

upAP NOTIFICATION-TYPE
 OBJECTS { awampEventID,
                awampEventSeverityCode,
                awampEventDescription,
                awampAPIP }
    STATUS current
    DESCRIPTION
 "This trap is sent when AP is detected as UP after being
         marked DOWN by the AMP."
    ::= { awampEventPrefix 15 }

genericTrap NOTIFICATION-TYPE
 OBJECTS { awampEventID,
                awampEventSeverityCode,
                awampEventDescription,
                awampAPIP }
    STATUS current
    DESCRIPTION
 "This trap will catch things not defined."
    ::= { awampEventPrefix 50 }
```

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